

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

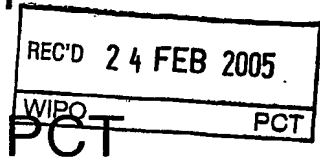
Applicant's or agent's file reference PD030118	FOR FURTHER ACTION	See item 4 below
International application No. PCT/EP2004/013243	International filing date (<i>day/month/year</i>) 22 November 2004 (22.11.2004)	Priority date (<i>day/month/year</i>) 06 January 2004 (06.01.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant THOMSON LICENSING		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 35%;">Box No. I</td> <td style="width: 50%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	<p>Date of issuance of this report 10 July 2006 (10.07.2006)</p> <p>Authorized officer Agnes Wittmann-Regis</p> <p>e-mail: pt06@wipo.int</p>
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/EP2004/013243	International filing date (day/month/year) 22.11.2004	Priority date (day/month/year) 06.01.2004	
International Patent Classification (IPC) or both national classification and IPC H04N7/52, H04N7/62			
Applicant THOMSON LICENSING S.A			

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application



2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

<p>Name and mailing address of the ISA:</p> <div style="text-align: center;">  </div> <p>European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016</p>	<p>Authorized Officer</p> <p>Hampson, F</p> <p>Telephone No. +31 70 340-3831</p> <div style="text-align: right;">  </div>
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/013243

Box No. 1 Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/013243

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: US 2002/118679 A1 (EYER MARK KENNETH) 29 August 2002 (2002-08-29)

D2: US 2002/141452 A1 (MAURITZ OSKAR ET AL) 3 October 2002 (2002-10-03)

1. The present application does not meet the criteria set forth in Article 33(3) PCT because the subject matter of independent claims 1, 8 and 10 and of dependent claims 2-7 and 9 does not involve an inventive step in respect of the prior art as defined in the regulations (Rule 64(1) PCT).
2. D1 discloses a receiver system wherein timing information in the form of program clock reference (PCR) information from an MPEG-2 transport stream is forwarded together with audio packets to an audio subsystem.
- 2.1 In particular, with respect to claim 1, D1 discloses (the signs in parentheses referring to this document):

Method for performing audio and video presentation including the steps of:

- receiving a data stream including of video and audio streams (Fig. 1 - 106 MPEG-2 TS);
- separating said data stream into video and audio streams (Fig. 1 - packet filters 110, 112, 114, 116);
- timestamping audio data packets of said audio stream (Fig. 1 - inclusion of PCR packets in audio partial TS 130) by first processing means (Fig. 1 - AV subsystem 102) and forwarding audio data packets to second processing means configured to receive audio data packets (Fig. 1 - audio subsystem 104);
- determining a local system time of said second processing means (Fig. 1 - clock recovery 152; paragraph 34);
- synchronising audio and video presentation based on said timestamps of the

audio data packets (paragraph 34).

The distinguishing features of claim 1 over prior art D1 concern:

- calculating time periods for the transmission of audio data packets from said first processing means to said second processing means, based on said local system time and said timestamps of the audio data packets and
- synchronising audio and video presentation based on said calculated transmission time periods.

2.2 Document D1 discloses few details of the actual synchronisation process in the audio subsystem, it simply discloses that "the packet filter delivers the packets with the program clock reference to clock recovery circuitry which recovers the presentation timing information according to MPEG-2 standards" (extract from paragraph 34 of D1).

From D1 it is however clear that the purpose is to provide synchronised audio and video presentation (see D1, paragraph 6), by making use of presentation timing information (PTS time stamps), indicating the time of presentation with respect to a common time base (D1, paragraph 7). The system clock at the receiving end is synchronised using program clock reference samples (D1, paragraph 8, lines 1-9). Turning now to the receiving apparatus of Figure 1, this necessity for synchronisation in the receiver implies that the clocks recovered in the video subsystem (122) and in the audio subsystem (152) must be synchronous, since only so can the receivers ensure that audio and video frames with corresponding presentation time stamps are indeed presented at the same instant. In order to produce a synchronous clock in both subsystems based on the PCR values, it would be necessary for the same PCR sample values to enter the clock recoveries 122 and 152 simultaneously. This is clearly not the case, since the PCR packet which is sent to the audio subsystem is first extracted by the video subsystem, multiplexed with audio packets, transmitted over a wireless link, received and filtered in the audio subsystem. This additional processing obviously creates a supplementary delay with respect to the same PCR packet which enters the video clock recovery system directly.

In order to ensure that the clock recovery of the audio subsystem is synchronous with that of the AV subsystem, it is therefore necessary to take into account the additional processing and transmission time of the PCR packets which are sent to the audio subsystem.

- 2.3 The skilled person wishing to implement the receiving system of D1 would obviously recognise the necessity of taking into account the processing and transmission delay for synchronisation when synchronising the audio subsystem clock with help of the PCR values.
- 2.4 In addition, this kind of problem has been addressed in the prior art, see e.g. D2, which is concerned with the clock synchronisation between a transmitter and a receiver via a network. In D2 time stamps are sent from a transmitter to a receiver to provide time synchronisation, while taking into account the transmission delay of the time stamp information (see D2, paragraphs 18-21 and Figures 2-4).
- 2.5 Having analysed the remaining problem when implementing the disclosure of D1 and making use of the disclosure of D2, the skilled person would obviously take into account the transmission delay in the synchronisation of the clock of the second device, thus leading to the subject-matter of independent claim 1 without the employment of any inventive step.

For these reasons, independent claim 1 is not inventive in the sense of Article 33(3) PCT.

- 2.6 Independent claim 8 is directed to a system comprising means for implementing the method steps of claim 1 and independent claim 10 is directed to a computer-readable storage medium holding code for performing the steps of the method of claim 1. Using the analysis of points 2.1 - 2.5 above, it can therefore be seen that these claims are not inventive in the sense of Article 33(3) PCT.
3. Dependent claims 2-7 and 9 are directed to details concerning the time stamping and the calculation of the time references. In D1, the time stamping is performed by providing a copy of the original program clock reference, however as an alternative, time stamps generated by the transmitting device may obviously be used, as disclosed in D2.
- 3.1 D2 discloses using the internal time clock of the first processing means to provide timestamping (page 2, left column, lines 23-24 and lines 30-32), subtracting the transmission time period from the local time to obtain the reference time (equation from paragraph 21), use of a plurality of time stamps to obtain a transmission time period (paragraph 27), use of the mean transmission time period for

synchronisation (paragraphs 24-26) and sorting of the accumulated transmission time periods (paragraph 29, removal of N_r time stamps which most deviate from the other time stamps implies a sorting procedure).

Therefore the subject-matter of dependent claims 2-4, 6 and 7 does not involve an inventive step in the sense of Article 33(3) PCT.

- 3.2 Referring to dependent claims 5 and 9, the expression "as an option" (page 9, line 5 and page 10, line 7) is ambiguous, since it is not clear whether the technical features following this expression are intended to limit the scope of the claim or not, since their presence is "optional".

This renders the claims 5 and 9 unclear, contrary to Article 6 PCT.

- 3.3 Under the assumption that the technical features following the expression "as an option" do not limit the scope of the claim, it appears that the subject-matter of dependent claims 5 and 9 is not inventive, contrary to Article 33(3) PCT for the following reasons:

D2 discloses filtering of the transmission delay $x(n)$ over a predetermined time window, wherein values most deviating from the mean are removed (D2, paragraph 29). The number of values to be removed is freely selectable, in the case where just one or two values are retained, this processing becomes equivalent to that of a median filter.